

What is claimed is:

1. A method for processing an image consisting of an array of pixels, the method comprising the steps of:

5 performing a scan of said array of pixels in a sequential manner, each pixel of said array being scanned once in order to provide pixel data;

10 identifying, using said pixel data, those pixels of the array which contain image information of significance;

15 assigning each pixel containing image information of significance to one of at least one image segment, the at least one image segment including a number of contiguous pixels containing image information of significance; and,

20 providing an image data output including summary information pertaining to the at least one image segment.

25 2. The method of claim 1 wherein said step of assigning each pixel further comprises a step of determining, for each pixel containing image information of significance, whether there is at least one contiguous pixel assigned to a segment, in order to determine to which of said at least one segment that pixel shall be assigned.

30 3. The method of claim 2 further comprising the step of selectively merging at least two segments to form a single segment in dependence upon whether one pixel containing image information of significance is contiguous with at least two pixels each assigned to a different one of said at least two segments.

4. The method of claim 3 wherein said step of determining is performed using a buffer register arranged to store segment information for previously scanned pixels of the array.

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5. The method of claim 4 wherein the at least one contiguous assigned pixel is above a pixel in the array.

6. The method of claim 5 wherein the at least one contiguous assigned pixel is to the left of a pixel in the array.

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7. The method of claim 6 wherein a register is kept of the at least one image segment, the register being arranged to record summation information and location information regarding the at least one segment.

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8. The method of claim 7 wherein the image represents human computer input.

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9. An image processing system for processing an image consisting of an array of pixels, said system comprising:

scanning means for scanning said array of pixels in a sequential manner, said scanning means being arranged to scan each pixel of said array once in order to provide pixel data; and

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processing means for processing said pixel data to identify those pixels of said array which contain image information of significance; said processing means being further arranged to assign each pixel containing image

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information of significance to one of at least one image segment, said at least one image segment including a number of contiguous pixels containing image information of significance;

5            wherein said processing means provides a data output of summary information pertaining to said at least one image segment.

10           10. The system of claim 9 wherein the processing means determines whether each pixel containing image information of significance has at least one contiguous pixel assigned to a segment, in order to determine to which of the at least one segment the pixel shall be assigned.

15           11. The system of claim 10 wherein at least two segments are selectively merged to form a single segment in dependence upon whether one pixel containing image information of significance is contiguous with at least  
20           two pixels each assigned to a different one of the at least two segments.

25           12. The system of claim 11 wherein the segment information of the at least one contiguous assigned pixel is determined using a buffer register which stores segment information for the pixels of the previous line.

30           13. The system of claim 12 wherein the at least one contiguous assigned pixel is above a pixel in the array.

14. The system of claim 13 wherein the at least one contiguous assigned pixel is to the left of a pixel in the array.

5 15. The system of claim 14 wherein a register is kept of the at least one image segment, the register including cumulative pixel value and segment location information regarding the at least one segment.

10 16. The system of claim 15 wherein the register is further arranged to include x-axis and y-axis cumulative coordinate values of the at least one segment.

15 17. The system of claim 16 wherein the x-axis and y-axis cumulative coordinate values include  $x\text{-axis} \times x\text{-axis}$ ,  $x\text{-axis} \times y\text{-axis}$ , and  $y\text{-axis} \times y\text{-axis}$  summation values.

20 18. The system of claim 17 wherein the addition of a pixel to one of the at least one segment includes the assimilation of coordinate values for the pixel into the registers for the one of the at least one segment.

25 19. The system of claim 18 wherein the at least one segment comprises at least two segments, and wherein the merging of two of the at least two segments includes the assimilation of corresponding coordinate values for the two of the at least two segments into the coordinate values of a single merged segment.

20. The system of claim 19 wherein the summation information and location information regarding the at least one segment are used after a complete scan to compute the centre and size of the at least one segment.

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21. The system of claim 20 wherein additional coordinate values are used to compute shape and orientation approximations for the at least one segment.

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22. The system of claim 21 wherein the image represents human computer input.

23. A computer program for processing an image consisting of an array of pixels, said program comprising:

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scanning means for scanning said array of pixels in a sequential manner, said scanning means being arranged to scan each pixel of said array once in order to provide pixel data; and

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processing means for processing said pixel data to identify those pixels of said array which contain image information of significance; said processing means being further arranged to assign each pixel containing image information of significance to one of at least one image segment, said at least one image segment including a number of contiguous pixels containing image information of significance;

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wherein said processing means provides a data output of summary information pertaining to said at least one image segment.

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24. A carrier containing a computer program as claimed in claim 23.

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